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## RECORD OF ORAL HEARING

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

*Ex parte* DAVID JAMES SEAL and EDWARD COLLES NEVILL

Appeal 2009-005737  
Application 10/781,883  
Technology Center 2100

Oral Hearing Held: February 4, 2010

Before JAMES D. THOMAS, LANCE LEONARD BARRY, and  
STEPHEN C. SIU, *Administrative Patent Judges*.

## APPEARANCES:

ON BEHALF OF THE APPELLANT:

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1        The above-entitled matter came on for hearing on Thursday, February  
2    4, 2010, commencing at 9:19 a.m., at the U.S. Patent and Trademark Office,  
3    600 Dulany Street, Alexandria, Virginia, before Paula Lowery, Notary  
4    Public.

5    THE CLERK: Good morning. Calendar Number 23, Mr. Lastova.

6    MR. LASTOVA: Good morning. Today we're going to talk about the data  
7    processing system that supports multiple instruction sets.

8    The advantage here is it allows considerable flexibility in the way that  
9    program operations can be represented, and that flexibility can provide  
10   improved codensity; but it typically comes at the disadvantage of increased  
11   hardware, like more decoding hardware.

12   So the inventors overcame this disadvantage by arranging the encoding of  
13   multiple different encoding sets so that they share a common subset of  
14   instructions with the same encoding, after variations to the storage order  
15   have been compensated for.

16   As a result, the data processing implementation can be advantageously  
17   simplified by using, for example, common decoding logic and more  
18   common processing logic, which reduces the amount of hardware.

19   Let's look at Claim 1 in terms of the non-limiting example embodiment  
20   given in the specification. If you'll look briefly at Figure 1, you'll see there's  
21   a processor 3 in the upper part of the figure, and there's a coprocessor 22 in  
22   the bottom left-hand corner there.

23   You'll see there's instruction decoders 12, a box in the center of the page,  
24   and then box 13 represents a common subset instruction decoder.

1 We'll get to this now, and it's helpful to think about the two sets that are  
2 given in the non-limiting example. There's an arm instruction set, and  
3 there's an enhanced thumb instruction set.  
4 They both are two different instruction sets, but you can see there's a  
5 common subset in which the instructions are the same for the coprocessor.  
6 So one of the coprocessor instructions in Figure 4 -- if you look at Figure 4,  
7 you'll see sort of toward the bottom of the page in that second box at the  
8 bottom there -- there's a coprocessor instruction, arm coprocessor instruction  
9 CDP. You'll see that top line there, and you can see the various  
10 representations for the bytes there.  
11 If you flip over then to Figure 5, you'll see the equivalent instructions, but  
12 this time they're coprocessor instructions in the enhanced thumb instruction  
13 set. Again, if you sort of look down toward that second box, you'll see CDP  
14 there and CDP has, essentially, the same bytes as you'll see in Figure 4 for  
15 CDP.  
16 Then Figure 6 points out that on the left-hand side there's an arm  
17 unconditional CDP instruction; and on the right-hand side there's a thumb  
18 unconditional CDP instruction.  
19 What you see there, they have essentially the same bytes, but they have  
20 some storage-order differences. If you were to, essentially, swap the first of  
21 two bytes for the arm instruction and look down at the lower two bytes for  
22 the thumb instruction, you'll see they're identical.  
23 If you flip bytes 3 and 4 for the arm instruction, and look up at bytes 1 and 2  
24 for the thumb instruction, you'll see they're the same as well.  
25 JUDGE BARRY: You know what I was puzzled about, Counsel?  
26 MR. LASTOVA: Yes?

1 JUDGE BARRY: Your whole invention is directed toward instruction  
2 decoding as the field. This reference, which is the sole reference for almost  
3 all the claims --

4 MR. LASTOVA: Right.

5 JUDGE BARRY: -- does not talk about instruction decoding at all.

6 MR. LASTOVA: Right.

7 JUDGE BARRY: I think the Examiner's position is fair. Obviously, the  
8 computer has an instruction decoder to decode instructions, but it doesn't  
9 talk about it. There's no details about it.

10 MR. LASTOVA: Not at all. There are none. So that's the problem.  
11 So you can see that's why the Examiner in his Answer struggled quite a bit.  
12 The Examiner couldn't really point to anything other than the storage order  
13 in the big ending and the little ending that's in this reference.  
14 So you get this very contrived, unreasonable sort of rejection that evolves to,  
15 well, we'll just ignore the words in the claim and we'll have first and second  
16 instruction sets be the same, all right?  
17 So he comes up with this unreasonable interpretation.  
18 JUDGE BARRY: Furthermore, why don't we make the common subset the  
19 same, too?  
20 MR. LASTOVA: Right. So what it essentially does is takes all the  
21 language of the claim and it doesn't make sense any more in context. That  
22 was really my main point.  
23 You can look at this and you can understand immediately if you take that  
24 adoption then the claim is nonsensical. It doesn't make any sense at all.

1 There are no two different modes of any decoder. You're right, Judge Barry,  
2 there probably is a decoder someplace. It's not described, but it certainly  
3 doesn't describe two different modes.

4 JUDGE BARRY: It doesn't describe a power source either, but certainly it  
5 has one.

6 MR. LASTOVA: Really, the issue is -- looking at the claims here -- it  
7 doesn't describe any of the language for the decoder that we recite in our  
8 independent claims.

9 JUDGE BARRY: It's basically a storage reference.

10 MR. LASTOVA: That's correct.

11 JUDGE BARRY: Reading instead of writing.

12 MR. LASTOVA: Right. So there's storage formats rather than decoder  
13 modes. I agree with you.

14 So what's missing here is, essentially, all the language in the various  
15 elements -- under the instruction decoder, for example, in Claim 1, you're  
16 missing the first and second instruction sets, you're missing the first and  
17 second modes. You're missing, as you pointed out, Judge Barry, the subset  
18 of program instructions having a common byte length and common storage  
19 order compensated in coding. Which after compensating for storage order  
20 differences, all bytes are identical in the form of common subsets.

21 You're missing all that language. One of the things I thought was interesting  
22 is that, of course, in the context of the claim we've already established that's  
23 not a reasonable claim instruction.

24 In the context of --

25 JUDGE BARRY: In fact, all you're left with is an inherent decoder that  
26 decodes inherent instructions because neither one is expressly disclosed.

1 MR. LASTOVA: That's right. Because it's really just the data value in  
2 Tables 1 and 2 in question. That's right.  
3 The point I wanted to make here, and we use this in the briefing, the  
4 Examiner comes up with some very strained analogies about barrels of  
5 apples, which of course doesn't make any sense at all.  
6 The more appropriate analogy would be my son -- I would say he has a first  
7 language, it's English. He actually does speak a second language. He  
8 speaks French. I don't, but he does. But you wouldn't say his first and  
9 second languages are English, right? That doesn't make any sense.  
10 That's one thing I just wanted to point out here. I guess the point is, and it  
11 seems we're in agreement here. There really is no way you can take the  
12 characterization of the Examiner and see it as reasonable. Claim 1 recites  
13 the subset instruction from a first instruction set, and it also recites the subset  
14 of instructions from a second instruction set.  
15 As we talked about, there's no subset described in Qureshi, and if there's  
16 only one instruction set in Qureshi, which there is -- that's all there is -- then  
17 the first and second modes of the claimed decoder are meaningless.  
18 So that's what I'd like to present today. It seems at least we're in agreement  
19 with Judge Barry here. I'm prepared to answer questions, otherwise I don't  
20 have anything further to say.  
21 JUDGE THOMAS: I think we have the issue, Counselor. Thank you very  
22 much.  
23 MR. LASTOVA: Thank you for your attention.  
24 Whereupon, the proceedings at 9:27 a.m. were concluded.  
25